DOCUMENT RESUME

ED 468 632 EA 031 805

AUTHOR	Greene, Jay P.
TITLE	A Survey of Results from Voucher Experiments: Where We Are and What We Know. Civic Report.
INSTITUTION	Manhattan Inst., New York, NY. Center for Civic Innovation.
REPORT NO	CCI-R-11
PUB DATE	2000-07-00
NOTE	24p.
AVAILABLE FROM	Manhattan Institute for Policy Research, 52 Vanderbilt Avenue, New York, NY 10017. Tel: 212-599-7000; Fax: 212-599-3494; Web site: http://www.manhattan-institute.org.
PUB TYPE	Information Analyses (070) -- Reports - Evaluative (142)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	*Educational Benefits; *Educational Vouchers; Elementary Secondary Education; *Private Schools; *School Choice; *School Demography; *Student Costs

ABSTRACT

This document is a review of eight studies of five existing voucher or school-choice programs conducted by four different groups of researchers. All studies have found important benefits of private school choice for families. Voucher programs do not appear to select primarily the best students. In all studies of existing choice programs the evidence shows that participants have very low family incomes, predominantly come from single-mother households, and have a record of low academic performance. The existing choice programs are not large enough nor have they operated long enough to reveal much about its effects on the public school system. However, Hoxby's work finds that metropolitan areas with more choices available have significantly better outcomes at lower cost. Private schools are more likely to have a racial composition similar to their communities and more likely than public schools to promote tolerance, voting, and social involvement. Perhaps the most striking finding from this review is an absence of evidence showing that school choice harms public schools or society. Given that voucher programs cost about half as much as conventional public education, they may prove to be an attractive option. (Contains 52 endnotes.) (RKJ)

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Civic Report

No. 11 July 2000

ED 468 632

A Survey of Results from Voucher Experiments: Where We Are and What We Know

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A Survey of Results from Voucher Experiments: Where We Are and What We Know

When I began doing research on school choice in 1995 there was relatively little solid, empirical information on the subject. At that time there was only one choice program, in Milwaukee, and the data from that program had already been withheld from examination by the research community for five years with little sign that it would become available soon.[1] Researchers wishing to examine the effects of school choice were limited to collecting evidence from public and private schools and extrapolating to what would happen under a choice system. A leading researcher following this approach, James Coleman, consistently found that private school students performed better academically than public schools students after controlling for a host of observed background differences.[2] Coleman and others also found that private schools, while educating a lower proportion of minority students, more evenly distributed minority students, producing better racial integration than that found in public schools. From these findings Coleman and others suggested that providing vouchers or tax credits for families to select the school of their choice, public or private, would increase academic achievement and improve racial integration in schools.

Many education researchers remained unconvinced. Unobserved and difficult to measure differences between families that select public and private schools might account for the apparent academic edge that private school students displayed, these researchers argued. Unfortunately, there was no way to respond to this objection fully as long as one was comparing families that chose a private school to those that did not. No matter how many controls were introduced for background differences, it was always possible that some other unobserved factors really explained the differences in outcomes. Many education researchers also remained unpersuaded that school choice would help promote integration. The lower percentage of minority students in private school, critics argued, was a more telling indicator of the effect of choice on integration than was the distribution of those students within the private sector.

In the absence of new sources of data, research on the effects of school choice remained deadlocked along these lines for many years. To be sure, innovative arguments were advanced by John Chubb and Terry Moe, but their work was more support for a theory of how school governance related to organization efficiency than it was a source of direct evidence on the consequences of school choice. And various articles and books were authored by critics of school choice, such as Henry Levin, Amy Stuart Welles, and Peter Cookson, but their arguments were largely based on theoretical assumptions, analogies to foreign systems, or their particular reading of the debate over Coleman's work.[3]

But starting in 1996 a flood of new data became available, greatly expanding what we know about the effects of school choice. First, John Witte released to other researchers the data he had obtained on the Milwaukee school choice program. Second, Cleveland began operating the second publicly funded school choice program and made at least some information available to different researchers. And third, several privately funded school choice programs were specifically designed to allow for rigorous

examination of their effects. As a result of all of these new programs and studies we now know quite a lot about the effects of school choice.

The evidence on school choice can be organized as addressing three questions: 1) What are the academic effects of school choice on the families that choose their school? 2) What are the academic effects of school choice on the public school system? And 3) What are the effects of school choice on the civic values and integration that we wish schools to promote? The evidence that addresses the first question, the academic effects of choice on the choosers, is now fairly strong. Our knowledge about the later two questions is still limited but growing stronger. Of course, much can still be learned on all three questions, and some people will never be satisfied with the quality or quantity of evidence produced. But it is fair to say that incredible progress has been made in the last several years in developing a solid empirical understanding of the effects of school choice programs.

It is also important to note that despite some well-publicized disagreements over research findings in recent years, there is a remarkable amount of consensus among the researchers who have collected and analyzed the data from recent programs on the general direction of the effects of school choice. These researchers largely differ on the confidence with which conclusions can be drawn and the inferences that can reasonably be made for shaping public policy, but they do not differ on their general assessments of the programs they have examined. That is, all of the researchers who have served as evaluators of the publicly-funded choice programs in Milwaukee and Cleveland, as well as the privately-funded programs in Washington, D.C., Dayton, New York, and San Antonio, agree that these programs have been generally positive developments and have supported their continuation, if not expansion. If one only examined the competing interest group and research community spin on the various evaluations instead of reading the evaluations themselves one might easily miss the level of positive consensus that exists. This positive consensus is all the more remarkable given the politically contentious nature of the issue and the rewards scholars have for highlighting disagreements with one another.

The Academic Effects of School Choice on Families that Choose Their School

One indication of the academic effects of school choice on "choosers" is whether they report being more satisfied with their school experience than do "non-choosers." Here the evidence in support of school choice is unambiguous and overwhelmingly positive. One of the evaluators in Milwaukee, John Witte, reported that "satisfaction of Choice parents with private schools was just as dramatic as dissatisfaction was with prior public schools."[4] In Cleveland, evaluator Kim Metcalf found, "Across the range of school elements, parents of scholarship students tend to be much more satisfied with their child's school than other parents. . . . [S]cholarship recipient parents are more satisfied with the child's teachers, more satisfied with the academic standards at the child's school, more satisfied with order and discipline, [and] more satisfied with social activities at the school. . . ."[5] Also in Cleveland, Paul Peterson, William Howell, and I found that after two years of the program choice parents were significantly more satisfied with almost all aspects of their children's education than were the parents of a random sample of Cleveland public school parents.[6] Nearly 50 percent of choice parents reported being very satisfied with the academic program, safety, discipline, and teaching of moral values in their private school. Only around 30 percent of Cleveland public school parents report being very satisfied with these aspects of their children's schools. Very similar results were obtained from the privately funded school choice programs in Washington, D.C., Dayton, New York, and San Antonio.[7]

If this were almost any other policy realm or consumer issue we might consider the strong positive effect of school choice on parental satisfaction sufficient evidence to conclude that the

program is beneficial to its participants. If, for example, people report that they are happier with the maintenance of public parks we would usually consider this as sufficient proof that efforts to improve the parks have succeeded. We would not normally feel obliged to count the number of items of trash and repair problems to verify reports of satisfaction.

But the standards for assessing programs in education are different. Many in the education and policy communities only give serious consideration to changes in standardized test scores and give little credence to parental reports. To put it bluntly, many in the education and policy communities suspect that parents are stupid and that reports of parental satisfaction are of little value, while test scores are the only meaningful indicator of program success. To put it more politely, many suspect that parents are not informed consumers of education, making their assessments of program success unreliable. Whether we put it bluntly or politely, the bottom line is that despite the overwhelmingly positive effects of school choice on parental satisfaction, these findings have not moved the policy debate very much.

With the focus on test scores, choice programs have demonstrated at least some positive effects according to almost all of the evaluations of the five publicly and privately-funded choice programs that have been studied. In Milwaukee, Paul Peterson, Jiangtao Du, and I took advantage of the fact that Wisconsin law required that participating private schools accept students by lottery when classes were oversubscribed. We compared the test scores of applicants who were accepted to the choice program by lottery to those who were rejected by lottery. We found significant test score gains for students who enrolled in the choice program relative to students who were denied a spot by lottery in math and reading after three or four years of participation in the choice program.[8] The size of the gains were quite large, 11 normal curve equivalent (NCE) points in math and 6 NCE points in reading over a four year period. These gains translate roughly into one half of a standard deviation in math and one-quarter of a standard deviation in reading.[9]

Unfortunately, the confidence that we can have in these findings is limited by the amount of missing data caused by high student mobility among poor families and incomplete data collection. The findings after three or four years in the program are based on test scores from 40 percent of the choice students and 48 percent of the control group students. There is, however, good reason to believe that the students missing test scores did not differ systematically from those for whom we had data. After three or four years our treatment and control groups did not differ significantly from each other in background characteristics collected when they applied, suggesting that little bias was introduced by missing data. They did not significantly differ on their math or reading test scores, their family income, their mother's education, their rate of single parenthood, or the amount of time parents spent with children.[10]

We also conducted an "intention to treat" analysis to test for the possibility that selective attrition from the program biased results. In this analysis, all subjects who win the lottery to receive a voucher were counted as if they were in the choice program even if they never enrolled or decided to leave the private schools and return to the Milwaukee public schools. Because we were including scores from these additional students, our conclusions could be based on the results of 63 percent of the choice students and 48 percent of the control group students. The results from the intention to treat analysis were basically the same as the main analysis, 11 NCE point gain in math and 6 NCE point gain in reading.[11]

Princeton economist and former staff member of the Clinton Administration's Council of Economic Advisors Cecelia Rouse independently analyzed the data from Milwaukee and arrived at similar results, at least in math scores.[12] After trying several analytical strategies Rouse concludes: "students selected for the Milwaukee Parental Choice Program . . . likely scored

1.5–2.3 [NCE] percentile points *per year* in math more than students in the comparison groups."[13] Rouse also writes that her findings for math scores are "quite similar to those reported by Greene et al."[14] On her reading results she says that they "are roughly similar to those reported by Greene et al, although they interpret their results differently. Specifically, Greene et al rely on one-tailed t-tests because (they argue) theoretically private school students should perform better."[15] Another difference is that Rouse relies on test scores in which students sometimes took standardized tests for the wrong grade given their age caused by fairly high rates of holding students back. We adjusted all scores to be age-appropriate according to tables supplied by the makers of the standardized test. Differential holding back of students in the public and private schools could significantly alter the results.

But discussion of all of these differences in analytical strategies obscures a basic point: both Rouse and we found that the Milwaukee school choice program had a significantly positive effect on student test scores. Neither of us found that students were harmed academically and both of our studies found that there were at least some academic benefits. Even if we differ on the full extent of the benefits, we both agree that the evidence supports the conclusion that school choice in Milwaukee was academically positive for the families offered the choice to attend a private school.

What about the third researcher who has examined the test score results from Milwaukee, John Witte? Rather than examine the random assignment experiment created by the fact that students were accepted by lottery, Witte compared the academic performance of choice students to a sample of Milwaukee public school students, controlling for a limited set of background characteristics. Based on this comparison Witte writes: "The general conclusion is that there is no substantial difference over the life of the program between the Choice and MPS students, especially the low-income MPS students. On a positive note, estimates for the overall samples, while always below national norms, do not substantially decline as the students enter higher grades. This is not the normal pattern in that usually inner-city student average scores decline relative to national norms in higher grades."[16] In other words, Witte, relying on non-random assignment comparisons, found that choice did not significantly help or hurt students academically, while two other studies relying on the more rigorous random-assignment comparison found significant academic benefits from choice. If these studies are mixed, as some like to say, they are only mixed to the extent that they are positive or neutral on the effects of choice on test scores.

Despite Witte's finding that choice neither helps nor hurts students academically, he has nevertheless endorsed school choice.[17] Witte writes, "choice can be a useful tool to aid families and educators in inner city and poor communities where education has been a struggle for several generations." He continues, "If programs are devised correctly, they can provide meaningful educational choices to families that now do not have such choices. And it is not trivial that most people in America . . . already have such choices."[18] Thus, all three evaluations of the Milwaukee choice program conclude that choice has at least some significant benefits for its participants. None of the three find that choice harms students. This is about as close as one gets to a positive consensus among researchers examining a controversial policy.

The Cleveland choice program also offers evidence on the academic effects of choice, but unfortunately the evidence from Cleveland is of lower quality because there are no random assignment data nor are there sufficient data on the background characteristics of choice and public school families. Despite these data limitations, some analyses of test scores have been performed by Kim Metcalf of the Indiana University School of Education and by myself, Paul Peterson, and William Howell. Both groups find at least some significant academic benefits of the choice program in Cleveland.

After two years Metcalf concludes, "The results indicate that scholarship students in existing private schools had significantly higher test scores than public school students in language (45.0 versus 40.0) and science (40.0 versus 36.0). However, there were no statistically significant differences between these groups on any of the other scores."[19] Metcalf's analyses were based on a comparison between one grade cohort of choice students and a non-random sample of public school students and had a very limited set of controls for background differences, which could seriously bias results.

In addition to finding significant test score gains, Metcalf, like Witte, favors the expansion of educational opportunities offered by school choice: "The scholarship program effectively serves the population of families and children for which it was intended and developed. The program was designed to serve low-income students while maintaining the racial composition of the Cleveland Public Schools. . . . The majority of children who participate in the program are unlikely to have enrolled in a private school without a scholarship."[20] Overall, Metcalf has a positive assessment of the effects of the Cleveland choice program on its participants.

Our own analyses of test scores in Cleveland had serious data limitations as well. We only had test scores from two private schools, although those schools did contain nearly 15 percent of all choice students and nearly 25 percent of all choice students who had transferred from public schools. We were only able to compare scores from students over time relative to how they scored when they first entered these two schools. Based on the experience, described by John Witte above, that inner-city students tend to have declining scores relative to national norms over time, we believed that any gains in test scores over time would be a strong indicator of academic progress for the choice students. We found that after two years students at the two schools we examined had gains of 7.5 national percentile points (NPR) in reading and 15.6 NPR in math.[21] These gains were achieved despite the fact that the students at these two schools were among the most disadvantaged students in Cleveland. We concluded that despite the shortcomings of the available data, there were indications of significant academic benefits for choice students in Cleveland.

In Cleveland, as in Milwaukee, all studies of the choice program are generally positive about the effects of the program. Metcalf finds some significant test score gains and praises the expansion of educational opportunities the program provides. Greene, Peterson and Howell also find significant test score gains.

The privately-funded programs in Washington, D.C., Dayton, and New York allow for more rigorous examination of the effects of choice on test scores than the publicly-funded Milwaukee and Cleveland programs do. In DC, Dayton, and New York complete demographic and test score information was collected from all applicants at the time they applied, and then a lottery was held to award the scholarships. Having complete information on students at baseline allows for adjustments to be made more accurately for attrition from the sample that inevitably occurs with a panel study of low-income families. And the lottery allows for the more rigorous random assignment research design, like that found in medical studies, which compares randomly assigned treatment and control groups.

The test score results from all three of these high-quality random assignment studies are again generally positive. After one year of participation in the program, choice students in grades 2 through 5 in New York benefited by about 2 NPR in math and reading. Older students, in grades 4 and 5, gained four points in reading and six points in math.[22] In D.C. African-American students in grades 2 through 5 gained 6.8 NPR in reading, but students in grades 6 though 8 lost 8.2 NPR in math.[23] In Dayton African-American students gained 6.8 NPR in math but their gain in reading fell short of statistical significance, probably due to a modest sized sample.[24]

In all three cities significant gains were observed for choice students and in only one city for one age group was there a significant decline. All of these results were obtained after less than one full academic year of participation in the choice programs (students were tested in March of their first year), so it is still early to draw definite conclusions about the long-term effects. Nevertheless, the consistency of positive results across all five choice programs, with eight different evaluations by four different groups of researchers, is striking. It is always possible that new studies will find different results. It is always possible that over time the gains achieved by choice students will disappear or reverse. But what level of certainty should we require before making reasonable policy decisions? The evidence accumulated to date on the benefits of choice for the families that are offered choices is at least as strong, and probably much stronger, than the evidence supporting most public policies.

The Effects of School Choice on the Public School System

If choice helps the choosers, does it do so at the expense of others? The suspicion is that choice programs "cream" the best students from the public schools, draining talent and resources from the public system. On the other hand, it is possible that creaming has largely already occurred in the public system. Higher achieving students and more affluent and involved families may have already chosen a public or private school that suits them, leaving "the rest behind." In fact, the U.S. Department of Education estimates that 59 percent of students currently attend "chosen" schools.[25] But many of the remaining 41 percent lack the financial resources to move to a desired public school attendance zone or pay private school tuition. Can vouchers exacerbate the situation in a way that harms non-choosing families?

As we have already seen, evaluations of the Milwaukee and Cleveland programs have concluded that the programs successfully targeted very low-income families, offering them opportunities that they otherwise would not have. The average income of families participating in the Milwaukee program was $10,860.[26] In Cleveland the mean family income was $18,750.[27] In New York it was $10,540.[28] In D.C. it was $17,774 and in Dayton it was $17,681.[29] In Milwaukee 76 percent of choice students were in single, female-headed households. In Cleveland the figure was 70 percent. In D.C. it was 77 percent and in Dayton it was 76 percent. The standardized tests of choice students before they began in private school showed that they averaged below the 31st percentile in Milwaukee, below the 27th percentile in New York, below the 33rd percentile in D.C., and below the 26th percentile in Dayton. In other words, choice students were generally performing in the bottom third academically. If this is cream, then none of us need go on a diet.

But all of these programs serve very low-income families because they have rules that require that recipients must earn less than a certain amount. That is, these programs target and successfully reach very disadvantaged children. Would we see more creaming if the income requirements were relaxed? The evaluation of the program in the Edgewood School District in San Antonio helps address this issue. The program in Edgewood only requires that families qualify for a subsidized school lunch, which is an income level much higher than that required in some of the other programs. And the program in Edgewood offered a monetarily generous scholarship to everyone in the district who wished to attend private school, creating unlimited potential for creaming.

If choice programs cream the best students, this creaming should have been visible in Edgewood. It was not. When they applied, the math test scores of the students in the choice program were not statistically different from the average Edgewood student. The reading scores of the choice students were higher, but they were both very low, 35 NPR for the choice students versus 28 NPR for the average Edgewood student.[30] (An internal Edgewood School District research report obtained under an open

records request actually showed no significant test score differences between those students who took the scholarship and those who remained in public school.[31]) Their family income was the same, $15,990 versus $15,939. The percentage living with both a mother and a father was the same, 44.8 percent versus 42.7 percent. The mothers of choice students were better educated, but the difference was between an average of 12 and 11 years of education. In short, some differences existed between choice and average Edgewood families, but these differences tended to be small and both groups could be described as very disadvantaged.

The most damaging thing that one could say about all of these choice programs with respect to creaming is that they probably attract the more capable of the disadvantaged poor.[32] But if this is creaming, then Food Stamps, Temporary Assistance to Needy Families, and virtually all other anti-poverty programs engage in creaming. Anti-poverty programs generally fail to serve the most dysfunctional of the poor because those people have difficulty taking full advantage of the programs designed to help them. This is not normally seen as an indictment against anti-poverty efforts, but rather as an unfortunate reality that all programs must face. Like these other anti-poverty programs, school choice programs can be designed so that they target disadvantaged populations, even if they do not always reach the most disadvantaged of the disadvantaged.

Even if choice does not cream the best students, doesn't it drain money from the public schools? It all depends on how the program is designed. In Cleveland, for example, the state essentially held the public schools harmless against any financial losses they might suffer from losing students to the voucher program. In Milwaukee, the voucher consisted only of the funds that the state contributes to educate each student, which is about half of the total amount spent by the public schools. Losing students while retaining half of the money normally spent to educate them results in an increase in the per capita expenditure for the remaining students. Of course, there are fixed costs in education, so whether public schools benefit or are harmed financially depends on the extent to which school systems can cut costs when they lose students.

In Edgewood, the scholarship resulted in the district losing as much as nine-tenths of its funding for each departing student because the district was heavily dependent on state and federal money allocated on a per capita basis. The scholarship program operators probably hoped that placing the district's funding in jeopardy would provide incentives for the district to improve itself in order to retain students. In other words, draining money from the public schools or the possibility of draining money if schools are not attentive to the needs of families might be exactly what we want. Whether increasing the amount of money for public schools in the absence of changes in organizational incentives is sufficient to cause school improvement is something in dispute among researchers.[33]

From the range of existing and proposed programs we see that choice could take no money from public schools, take some money but increase the per capita expenditure for the remaining students, or place significant amounts of money for the public schools at jeopardy if they fail to retain students. The financial impact of choice depends on how we design the policy, so it is really impossible to make a blanket statement about whether or the extent to which choice drains money from the public system.

Besides, the talent and resources available to the public schools are inputs, not outputs. What we really care about is whether students and their families, in both public and private schools, benefit from a choice system regardless of how resources are distributed. On this issue there is less direct evidence available. None of the existing choice programs have been around long enough on a large enough scale to expect much effect, good or bad, on the public schools. There are some preliminary indications that public schools are attempting reforms to address the competitive challenge from choice programs. For example, in Milwaukee the public schools

have promised to provide individual tutoring to any student not reading at grade level by grade 3, a policy that they have advertised on billboards. In Edgewood, the district has opened its doors to students from neighboring school districts to try to offset some of the loss of students to the privately-funded scholarship program. But it is still too early to determine whether these reforms will result in real improvements in the quality of education.

However, one recent study, by Harvard economist Caroline Minter Hoxby, examines the effect of choice on the quality of public and private schools using a very innovative research strategy.[34] Hoxby takes advantage of the fact that some families currently exercise choice by moving to different school districts within a metropolitan area or by paying the tuition to send their children to private school. Some metropolitan areas have more choices available than others because some have more school districts and more private schools. For example, Boston has several school districts in the metropolitan area (e.g. Boston, Brookline, Cambridge, Waltham, etc. . . .), while Miami has only one school district for the entire county.

Hoxby examines whether having more choices available is related to higher academic achievement. As one would expect from most economic theory and experience about competition and choice, she finds that the metropolitan areas with more choices available have higher academic performance at lower cost than do metropolitan areas with fewer choices available. A one standard deviation increase in the available public school district choices results in a 3 percentile point improvement in test scores and a 4 percent increase in wages for students upon entering the work force, all for 17 percent less per capita expenditure.[35] A one standard deviation increase in choices offered by the private sector results in an 8 percentile point improvement in test scores and a 12 percent increase in wages for students upon entering the work force, without any significant change in per capita expenditure.[36] Hoxby concludes: "if private schools in any area receive sufficient resources to subsidize each student by $1,000, the achievement of *public* school students rises."[37] Choice appears to help the non-choosers as well as the choosers.

The evidence suggests that school choice does not cream the best students, does not necessarily take money from public schools, and results in better quality education for public school students by providing their schools with incentives to be more attentive to their needs. Of course, evidence on this last point is limited. We do not have direct evidence from existing voucher programs, but we do have evidence from the variation in choices offered families already. The only way to obtain better evidence would be to try some voucher programs on a larger scale to examine their effects on the public schools over time.

The Effects of School Choice on Civic Values and Integration

But even if school choice has beneficial academic effects on students, might it not undermine the civic values and integration that we wish schools to promote? These non-academic outcomes may be as important as the test scores that receive so much attention. After all, the development of a system of government-operated schools was motivated as much by concerns over these civic goals as they were over academic success and economic productivity.[38]

Until recently there was little empirical examination of this issue. The strongly held assumption that private schools were bastions of segregation and intolerance guided many people's views. Some empirical studies observed that choosers tended to be somewhat more likely to be white and of higher socioeconomic status than non-choosers. Of course, even the choosers in existing programs have very low-incomes (all average under $18,750) and are overwhelmingly drawn from minority families (all programs have more than 2/3 minority students and some have more than 90 percent). Nevertheless, from observations of differences between the race and income of

choosers and non-choosers, some researchers concluded that choice contributes to segregation.[39] But these researchers ignore the fact that many families already choose their public school by choosing where to live. These residential choices greatly contribute to racial and economic segregation in schools, since public schooling is largely determined by highly segregated housing patterns.

The question is not whether choosers differ from non-choosers; the question is whether offering choices leads to more or less segregation than currently exists under our constrained residential choice system. Thus, the appropriate comparison is not between the characteristics of choosers and non-choosers, but between the segregation provided by systems with more or less choice for parents. Comparing segregation in public schools, where many students have not chosen their school, to that found in private schools, where enrollment is completely voluntary, addresses the question more accurately.

Several studies that I have conducted shed light on this issue. In one study I examined the racial composition of a random sample of public and private school students' classrooms, collected by the National Education Longitudinal Study (NELS).[40] I found that private school students were significantly more likely to be in classrooms whose racial composition resembled the national proportion of minority students and significantly less likely to be in classrooms that almost entirely consisted of white or minority students. More than a third (37 percent) of private school students were in classrooms with a percentage of minority students that was within 10 percent of the proportion of minority students nationally. Only 18 percent of public school students were in similarly integrated classrooms. And more than half (55 percent) of public school students were in classrooms that were almost entirely white or almost entirely minority in their racial composition, while 41 percent of private school students were similarly segregated. When all families choose their schools, as they do in the private sector, more had their children in racially mixed educational settings than when more families were assigned to schools, as they are in the public sector. Choice appears conducive to integration, while government assignment to public school appears conducive to segregation.

In another study, colleagues and I observed a random sample of public and private school lunchrooms in Austin and San Antonio, Texas, and recorded where students sat by race.[41] We found that private school students were significantly more likely to be in racially mixed groups at lunch than were public school students. After adjusting for the city, seating restrictions, school size, and student grade level, we found that 79 percent of private school students were in racially mixed groups compared to 43 percent of public school students. Sitting in a racially mixed group was defined as having any one of five adjacent students being of a different racial or ethnic group. We found that religious, private schools were better integrated than were secular schools, suggesting that the low tuition typically found at religious schools helped contribute to racial integration. If vouchers or tax-credits further reduced the financial barriers to private school attendance, integration in private schools might be even better.

We also found that public schools with more students from outside their attendance zones, that is with more magnet program or transfer students, had higher rates of integration. It appears that choice systems, where schooling is detached from housing, are better able to transcend racial segregation in housing patterns. Traditional public schools, however, appear to replicate and perhaps reinforce racial segregation in housing.

Recent work by Duke University economist Thomas Nechyba arrives at similar conclusions about segregation by income.[42] Based on policy simulations Nechyba finds, "By removing education-related incentives for high-income households to separate themselves from poor neighborhoods, vouchers introduce a desegregating force into society. [And] by reducing

housing prices in high quality public school districts and raising them in low quality districts, vouchers help more low-income families afford to live in areas with better public schools."[43] In other words, the public school system's practice of attaching schooling to housing has created distortions in housing segregation and pricing. Housing prices are artificially high in areas with desirable public schools and artificially low in areas with undesirable public schools, contributing to more severe sorting of housing patterns by income (and race). By detaching schooling from housing, school choice makes it easier for wealthier families to stay in economically mixed neighborhoods by giving them easier access to desirable schools. And by reducing the premium placed on housing in areas with good schools, vouchers make it easier for poorer families to move into those areas. It is no wonder that vouchers are most supported by poor inner-city residents and most opposed by well-to-do suburbanites.

But these findings are based on examinations of existing private schools or policy simulations. What would the effects of an actual choice program be on integration? We have some evidence from the Cleveland and Milwaukee school choice programs to address this question. Following a strategy similar to that used to examine the data from NELS, I looked at whether choice students in Cleveland were more likely to attend schools that were racially representative of the broader community and less likely to attend racially homogeneous schools than were public school students.[44] I found that nearly a fifth (19 percent) of recipients of a voucher in Cleveland attend private schools that have a racial composition that resembles the average racial composition of the Cleveland area (defined as having a proportion of minority students in the school that is within 10 percent of the average proportion of minorities in metropolitan Cleveland). Only 5 percent of public schools students in the Cleveland metropolitan area are in comparably integrated schools. More than three-fifths (61 percent) of public school students in metropolitan Cleveland attend schools that are almost entirely white or almost entirely minority in their racial composition. Half of the students in the Cleveland Scholarship Program are in comparably segregated schools. The amount of integration is not great in either system, but it is markedly better in the choice program.

When Howard Fuller and George Mitchell examined racial integration data from Milwaukee, their findings were similar to those from Cleveland. In 1998-99, they observed that 58 percent of Milwaukee public elementary students attended schools with more than 90 percent or fewer than 10 percent minority students. Only 38 percent of elementary school students at a large sample of Milwaukee Catholic schools were in similarly segregated schools. In 1998-99, Catholic schools accounted for more than half of the growth of choice students in the Milwaukee voucher program.

The public systems in Cleveland and Milwaukee, despite years of busing and other forced desegregation efforts, produce highly segregated schools. Desegregation has failed in those districts because white parents lacked faith in the public school's ability to manage integration successfully and fled to the suburbs. The school choice programs in those cities, however, allow families to transcend racial segregation in housing to select a racially mixed school in which they have confidence. And families are more likely to pick racially mixed schools when their choices are enabled by a voucher than when their choices are enabled by their ability to purchase housing in areas with desired schools. The point is not whether choosers are more likely to be of a certain group than non-choosers. The point is that a voucher system of choice produces more integrated schools than does the existing, more constrained, system of residential choice.

But an even deeper fear among choice skeptics is that private schools will promote intolerance and anti-democratic values. Public schools, by virtue of their public control, are assumed to be more likely to instill these desired civic values in students than are privately-operated schools.

Theorists, such as Amy Gutmann, Stephen Macedo, and Benjamin Barber, make arguments along these lines but they have little to no empirical support for their claims.[45] And while there has been a considerable amount of research developing reliable measures of tolerance in political science,[46] until recently—curiously—no one has examined whether tolerance differs among people educated by different school sectors.

In the past two years four studies have been conducted to measure the effect of public and private education on political tolerance. Three studies use a version of the tolerance scale developed by John Sullivan and colleagues to measure tolerance and one uses a similar approach. Respondents are asked to identify their least liked group from a list. They are then asked whether they would agree to allow members of that group to engage in certain activities, such as holding a rally or running for elected office. The more that respondents agree to allowing members of their least liked group to engage in these activities, the more tolerant they are said to be.

In one study colleagues and I analyzed responses from the Latino National Political Survey (LNPS), which was a national sample of adult Latinos.[47] Subjects were asked whether they went to a public, private, or foreign school for each grade and they were asked the tolerance questions developed by Sullivan. Controlling for a variety of background characteristics, we found that adult Latinos who had been educated more in private school were more likely to be tolerant than those who had been educated more in public or foreign schools. The effect was moderate, but significant. Latinos who received their education entirely in private school were willing to tolerate the political activities of their least-liked group 50 percent of the time compared to 39 percent for Latinos who never attended private school, holding all other factors constant.

Rather than being the bastions of intolerance they are sometimes imagined to be, private schools appear to be more successful than public schools at instilling tolerance in their students. And remarkably, this private school advantage on tolerance appears to last into the adult lives of their students.

The data from the LNPS reveal some other civic benefits of private education. Adults who were educated in private schools are more likely to vote and more likely to join civic organizations. Receiving all of one's education in private school increased the rate at which the respondents voted by 14 percent and increased the rate at which they joined voluntary organizations by 8 percent. Government-operated schools, which were created to a large degree for this very purpose, appear to be less capable of promoting desired civic values than chosen and privately-operated schools.

Patrick Wolf and colleagues conducted a study of college students at four universities in Texas that also collected measures of tolerance and earlier public and private school attendance.[48] That study arrives at the same conclusion as the LNPS study: going to private school is associated with *higher*, not lower, levels of tolerance, even after controlling for a host of background characteristics. The benefit of having received all of one's primary and secondary education in private schools is roughly .3 of a standard deviation on the tolerance scale, an effect that is fairly large.

David Campbell examined a large national data set of secondary school students that contained a limited set of tolerance items that focused on whether students would tolerate anti-religious activities.[49] These measures of tolerance are an especially hard test of whether tolerance is taught better at religious private schools, given their focus on tolerating anti-religious activities. Despite this likely bias, Campbell finds that Catholic school and secular private school students are more likely to be tolerant than are public school students. Secular, Catholic, and other religious private schools students outperformed their public school counterparts on other civic measures, such as their experience with

volunteering and their willingness to engage in public speaking or write letters on public issues.

Ken Godwin and colleagues also collected data from students who were currently enrolled in public and private schools in New York and Texas and measured their political knowledge, support for democratic norms, and tolerance.[50] Measures of political knowledge and support for democratic norms, like measures of tolerance, are well-developed scales based on a series of questions in a survey. The results show a statistically significant and positive effect of private education on political knowledge and support for democratic norms. The results for tolerance were positive but fell short of statistical significance. The Godwin study, like the LNPS and Texas college student studies, show positive effects of private education on civic values and fail to find negative effects, as may observers would have expected.

It is not entirely clear why private schools promote greater tolerance, political participation, and social involvement among their students. It may be that private schools better teach these civic values because they are better racially integrated, as is demonstrated above. Some of the expected by-products of integration are greater mutual understanding, tolerance, and social involvement. Indeed, data from NELS show that private school students are more likely to report greater levels of cross-racial friendship and fewer instances of racial fighting than are public school students.[51] It may be that private schools, because they do not have to fear political repercussions by virtue of not being democratically controlled, are ironically empowered to address the controversial issues raised by teaching tolerance and civic values. It may be that private schools simply teach values more effectively, just as they may teach math and reading better.

Whatever the cause of the higher rates of tolerance, voting, and social involvement of private school students, the fact that these advantages exist is a striking rejoinder to those who oppose choice on civic grounds. The evidence suggests that we need not fear that giving more students access to private schools will undermine the integration or civic values that we expect schools to provide. If anything, the evidence suggests that expanding private education will help promote these civic goals.

Conclusion

Reviewing the recent evidence on the effects of school choice leaves us with a few basic conclusions:

There is a positive consensus among all eight studies, of five existing choice programs, conducted by four different groups of researchers. To be sure differences exist among these studies, but all have found important benefits of choice for the families that participate in them.

Choice does not appear to "cream" the best students. In all studies of existing choice programs the evidence shows that participants have very low family incomes, predominantly come from single-mother households, and have a prior record of low academic performance.

The existing choice programs are not large enough nor have they operated long enough to reveal much about the effects, positive or negative, on the public school system. However, Hoxby's work finds that metropolitan areas with more choices available have significantly better outcomes at lower cost. From this examination of the residential choice system that currently exists, we can expect that choice is likely to improve public schools.

Private schools are more likely to be integrated (having a racial composition that resembles the composition of the broader community) and less likely to be segregated (having a racial composition that is almost all white or almost all minority) than are public schools.

Private schools are more likely to promote tolerance, voting, and social involvement than are public schools.

The finding of positive effects of choice on its participants is remarkably consistent across all studies of existing choice programs and is something in which we should have reasonably high confidence. The finding of the absence of creaming is also something that is consistent across all studies of existing choice programs and is something in which we should have confidence. The conclusion about the positive effects of choice on public schools is based on an innovative study, but it is only one study. The best current evidence supports the view that choice should help improve public schools, but we cannot know this with greater confidence unless we are willing to try more choice programs on a larger scale.

The findings that choice contributes to higher levels of racial integration and civic values are consistent across several studies with appropriate analytical designs. These conclusions are so at odds with conventional wisdom on the matter, however, that they probably need additional studies to confirm the results with higher confidence. Yet, they are the most solid conclusions we can draw given the available evidence.

But perhaps the most striking finding from the review of school choice research is the absence of evidence about how school choice harms students or society. Given that vouchers cost about half as much as conventional public education, the absence of harms is proof enough that school choice is an attractive option.[52] Perhaps we will detect significant damages caused by school choice or perhaps the benefits we have detected will diminish when programs are attempted on a larger scale. Without attempting larger scale programs, we will have a hard time knowing.

ENDNOTES

[1] There had earlier been a choice experiment in Alum Rock, California, but it only included public schools and was so compromised in its implementation that it shed virtually no light on the effects of school choice.

[2] See, for example, James S. Coleman, Thomas Hoffer, Sally Kilgore, *High School Achievement*, (New York: Basic Books), 1982; James S. Coleman, Thomas Hoffer, Sally Kilgore, "Questions and Answers: A Response to Our Critics," *Harvard Educational Review* 51 (November 1981), pp. 526-45; James S. Coleman, Thomas Hoffer, Sally Kilgore, "Achievement and Segregation in Secondary Schools: A Further Look at Public and Private School Differences," *Sociology of Education* 55 (April/July 1982), pp. 162-83. *The Harvard Educational Review* and *Sociology of Education* issues contained several critical essays and Coleman's responses.

[3] See, for example, Henry M. Levin, "Educational Vouchers: Effectiveness, Choice, and Costs," *Journal of Policy Analysis and Management*, vol. 17, no. 3, Summer 1998; Amy Stuart Wells, *A Time to Choose* (New York: Hill and Wang) 1993; and Peter W. Cookson, *School Choice: A Struggle for the Soul of American Education* (New Haven: Yale Press) 1994.

[4] John F. Witte, "The Milwaukee Voucher Experiment," *Educational Evaluation and Policy Analysis*, Vol. 20, No. 4, Winter, 1999, p. 237.

[5] Kim K. Metcalf, "Evaluation of the Cleveland Scholarship and Tutoring Program, 1996-1999," Unpublished Manuscript, Indiana University, 1999, p. 20.

[6] Paul E. Peterson, William G. Howell, and Jay P. Greene, "An Evaluation of the Cleveland Voucher Program After Two Years," Harvard Program on Education Policy and Governance Working Paper, 1998, available at http://hdc-www.harvard.edu/pepg/index.htm; See also Jay P. Greene, William G. Howell, and Paul E. Peterson, "Lessons from the Cleveland Scholarship Program," *Learning From School Choice* (Washington, D.C.: Brookings Press) 1998.

[7] Paul E. Peterson, Jay P. Greene, William G. Howell and William McCready, "Initial Findings from an Evaluation of School Choice Programs in Washington, D.C. and Dayton, Ohio," Harvard Program on Education Policy and Governance Working Paper, 1998; Paul E. Peterson, David Myers and William G. Howell, "An Evaluation of the New York City: School Choice Scholarships Program: The First Year," Harvard Program on Education Policy and Governance Working Paper, 1998; and Paul E. Peterson, David Myers and William G. Howell, "An Evaluation of the Horizon Scholarship Program in the Edgewood Independent School District, San Antonio, Texas: The First Year," Harvard Program on Education Policy and Governance Working Paper, 1999. All of these papers are available at http://hdc-www.harvard.edu/pepg/index.htm.

[8] Jay P. Greene, Paul E. Peterson, and Jiangtao Du, "School Choice in Milwaukee: A Randomized Experiment," *Learning From School Choice* (Washington, D.C.: Brookings Press) 1998, p. 345. See also Jay P. Greene, Paul E. Peterson, and Jiangtao Du, "Effectiveness of School Choice: The Milwaukee Experiment," *Education and Urban Society*, vol. 31, no. 2, February, 1999.

[9] These changes in standard deviation are calculated using the variance in the national sample of the Iowa Test of Basic Skills not the variance in the sample examined in Milwaukee. The standard deviation gains would be even larger if we used the Milwaukee sample as the basis of comparison.

[10] Jay P. Greene, Paul E. Peterson, and Jiangtao Du, "School Choice in Milwaukee: A Randomized Experiment," *Learning From School Choice* (Washington, D.C.: Brookings Press) 1998, p. 344. They did, however, differ significantly on their educational expectations, but it is not clear that this was information collected before participation in the choice program.

[11] Jay P. Greene, Paul E. Peterson, and Jiangtao Du, "School Choice in Milwaukee: A Randomized Experiment," *Learning From School Choice* (Washington, D.C.: Brookings Press) 1998, p. 349. The fact that the benefit does not appear to decline when students who are not in private schools are

included in the treatment group suggests that the benefit results from being offered a choice to find a suitable school for each child. For some students that suitable choice may be a private school and for some that suitable choice may be a public school.

[12] Cecelia Elena Rouse, "Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program," *The Quarterly Journal of Economics*, volume CXIII, issue 2, May 1998, pp. 553-602.

[13] Ibid, p. 593. Italics added.

[14] Ibid p. 578.

[15] Ibid, p. 580.

[16] John F. Witte, "The Milwaukee Voucher Experiment," *Educational Evaluation and Policy Analysis*, Vol. 20, No. 4, Winter, 1999, pp. 236-7.

[17] Joe Williams, "Ex-Milwaukee evaluator endorses school choice: Opponents of program have used his earlier work to argue it has failed," *The Milwaukee Journal-Sentinel*, January 9, 2000, p. 1.

[18] Ibid.

[19] Metcalf, op cit, p. 15.

[20] Metcalf, op cit, p. 23.

[21] Paul E. Peterson, William G. Howell, and Jay P. Greene, "An Evaluation of the Cleveland Voucher Program After Two Years," Harvard Program on Education Policy and Governance Working Paper, 1998, Table 12, available at http://hdc-www.harvard.edu/pepg/index.htm; See also Jay P. Greene, William G. Howell, and Paul E. Peterson, "Lessons from the Cleveland Scholarship Program," *Learning From School Choice* (Washington, D.C.: Brookings Press) 1998.

[22] Paul E. Peterson, David Myers and William G. Howell, "An Evaluation of the New York City: School Choice Scholarships Program: The First Year," Harvard Program on Education Policy and Governance Working Paper, 1998. Available at http://hdc-www.harvard.edu/pepg/index.htm.

[23] Patrick J. Wolf, William G. Howell, and Paul E. Peterson, "School Choice in Washington, D.C.: An Evaluation After One Year," Harvard Program on Education Policy and Governance Working Paper, 2000, Table 17. Available at http://hdc-www.harvard.edu/pepg/index.htm.

[24] William G. Howell and Paul E. Peterson, "School Choice in Dayton, OH: An Evaluation After One Year," Harvard Program on Education Policy and Governance Working Paper, 2000, Table 17. Available at http://hdc-www.harvard.edu/pepg/index.htm.

[25] "Findings from the Condition of Education 1997: Public and Private Schools: How do They Differ?" National Center For Education Statistics, U.S. Department of Education. Available at: http://nces.ed.gov/pubs97/97983.html.

[26] Greene, Peterson, and Du, op cit, p. 344.

[27] Metcalf, op cit, p. 9.

[28] Paul E. Peterson, David Myers, Josh Haimson, and William G. Howell, "Initial Findings from the Evaluation of the New York School Choice Scholarships Program," Mathematica Policy Research, 1997, Table 2. Available at http://hdc-www.harvard.edu/pepg/index.htm.

[29] Howell and Peterson, op cit, Table 2.

[30] Paul E. Peterson, David Myers, and William G. Howell, "An Evaluation of the Horizon Scholarship Program in the Edgewood Independent School District, San Antonio, Texas: The First Year," Harvard Program on Education Policy and Governance Working Paper, 1999, Table 1.2. Available at http://hdc-www.harvard.edu/pepg/index.htm.

[31] An internal school district report from the small school choice program in Florida shows the same lack of differences in the test scores of departing and remaining students.

[32] It is also true that there are fewer choice students with physical or learning disabilities. In part this may be explained by the differential labeling and segregating of disabled students in public and private schools. In part this may also be explained by the fact that the cost of educating some disabled students far exceeds the amount provided by the scholarship or voucher. It would be

interesting to see whether private schools might take on many more disabled students if they were provided with even some of the additional funding that public schools receive for educating those students.

[33] See Gary Burtless, ed., *Does Money Matter*, (Washington, D.C.: Brookings Press) 1996.

[34] "Analyzing School Choice Reforms that Use America's Traditional Forms of Parental Choice," in Peterson and Hassel, eds, *Learning from School Choice* (Washington, D.C.: Brookings) 1998.

[35] Ibid, p. 144.

[36] Ibid, p. 148.

[37] Ibid, p. 148. Emphasis in original.

[38] In actuality, the development of the public school system was driven to a large degree by fears of Catholic immigrants and the values they would teach their children. This anti-Catholic origin of public schooling has remarkably been replaced with strong myths about the egalitarian and tolerant qualities of public education. See Charles Leslie Glenn, Jr., *The Myth of the Common School* (Amherst: University of Massachusetts Press) 1988.

[39] See, for example, Helen Ladd and Edward Fiske, *School Choice in New Zealand: A Cautionary Tale* (Washington, D.C.: Brookings) 2000; Amy Stuart Wells, "Why Some Win and Others Lose in the Educational Marketplace," and J. Douglas Willms and Frank H. Echols, "The Scottish Experience of Parental School Choice," in Edith Rassell and Richard Rothstein, eds, *School Choice: Examining the Evidence* (Washington, D.C.: Economic Policy Institute) 1993.

[40] Jay P. Greene, "Civic Values in Public and Private Schools," in *Learning from School Choice*, 1998.

[41] Jay P. Greene and Nicole Mellow, "Integration Where It Counts: A Study of Racial Integration in Public and Private School Lunchrooms," Public Policy Clinic Working Paper, 1998. Available at: http://www.la.utexas.edu/research/ppc/lunch.html.

[42] "School Finance Induced Migration Patterns: The Impact of Private School Vouchers," *Journal of Economic Theory*, 1999; and "Mobility, Targeting and Private School Vouchers," *American Economic Review* (Forthcoming).

[43] Michael Heise and Thomas Nechyba, "School Finance Reform: A Case for Vouchers," Center for Civic Innovation, The Manhattan Institute for Public Policy Research, Civic Report, Number 9, October, 1999.

[44] "The Racial, Economic, and Religious Context of Parental Choice in Cleveland," Paper presented at the Association for Public Policy Analysis and Management meeting in Washington, D.C., November, 1999. Available at http://hdc-www.harvard.edu/pepg/index.htm.

[45] See Amy Gutmann, *Democratic Education* (Princeton: Princeton University Press) 1987; Stephen Macedo, *Diversity and Distrust*, (Cambridge: Harvard University Press) 2000; and Benjamin Barber, "Education for Democracy," *The Good Society* 7 (Spring 1997).

[46] John L. Sullivan, James E. Piereson, and George E. Marcus, *Political Tolerance and American Democracy* (Chicago: University of Chicago Press) 1982.

[47] Jay P. Greene, Joseph Giammo, and Nicole Mellow, "The Effect of Private Education on Political Participation, Social Capital and Tolerance: An Examination of the Latino National Political Survey," *The Georgetown Public Policy Review*, vol. 5, number 1, Fall, 1999.

[48] Patrick J. Wolf, Jay P. Greene, Brett Kleitz, and Kristina Thalhammer, "Private Schooling and Political Tolerance, Evidence from College Students in Texas," Paper presented at a conference co-sponsored by the Manhattan Institute and the Program for Education Policy and Governance, Cambridge, MA, March, 2000.

[49] David Campbell, "Making Democratic Education Work: Schools, Social Capital and Civic Education," Paper presented at the Conference on Charter Schools, Vouchers, and Public Education, Harvard University, March 9-10, 2000.

[50] Ken Godwin and Patrick J. Wolf, "Political Tolerance in Public and Private Middle School Students," Unpublished Manuscript, 1999.

[51] Greene, "Civic Values in Public and Private Schools," op cit, 1998.

[52] The privately funded scholarships pay less than $2,000 per pupil while on average public schools spend $6,624, almost three times in constant dollars what was spent three decades ago (http://nces.ed.gov/fastfacts/display.asp?id=66). The program in Cleveland pays a little more than $2,000 and the program in Milwaukee pays about half of the per pupil expenditure in Milwaukee public schools. Of course, private schools sometimes receive subsidies from sponsoring religious organizations, but this generally constitutes no more than a few hundred dollars per pupil. And public schools spend some of their money on transportation and special education services, but these do not account for the entirety of the difference between public and private school expenditures. It is also worth remembering that private schools often educate special education students, but they may not always label and segregate those students, allowing for an isolation of those costs.

Appendix

Table 1: The Effect of School Choice on Parental Satisfaction

Milwaukee	
Witte, 1999	"Satisfaction of Choice parents with private schools was just as dramatic as dissatisfaction was with prior public schools."
Cleveland	
Metcalf, 1999	"Across the range of school elements, parents of scholarship students tend to be much more satisfied with their child's school than other parents. . . . [S]cholarship recipient parents are more satisfied with the child's teachers, more satisfied with the academic standards at the child's school, more satisfied with order and discipline, [and] more satisfied with social activities at the school. . . ."
Greene, Howell, Peterson, 1998, 1999	Nearly 50% of choice parents reported being very satisfied with the academic program, safety, discipline, and teaching of moral values in their private school. Only around 30% of Cleveland public school parrents report being very satisfied with these aspects of their children's schools.
Washington, D.C.	
Wolf, Howell, Peterson, 2000	"Forty-six percent of the private school parents gave their school an 'A', as compared to just 15 percent of the public-school parents."
Dayton	
Howell, Peterson, 2000	"Private-school parents are more enthusiastic about their schools than either public-school parents generally or those public-school parents who applied for a school voucher. When asked to give their school a grade from A to F, 47 percent of the private school students gave their school an 'A', as compared to 25 percent of the cross-section of public-school parents and 8 percent of the public-school parents who had applied for a voucher but did not receive one."
New York	
Peterson, Myers, Howell, 1998	"The percentage of parents "very satisfied" with a private school was significantly higher for all of the following: location of the school, school safety, teaching, parental involvement, class size, school facility, student respect for teachers, teacher communication . . . , extent to which child can observe religious traditions, parental support for the school, discipline, clarity of school goals, staff teamwork, teaching, academic quality, the sports program and what is taught in school."

Table 2: The Effect of School Choice on Families that Exercise Choice

Milwaukee	
Greene, Peterson, Du, 1999:	6 NCE point benefit in reading and 11 NCE point benefit in math after 4 years of participation
Rouse, 1998:	1.5 to 2.3 NCE point gain in math *per year*
Witte, 1999:	Neither benefit nor harm to test scores but "choice can be a useful tool to aid families and educators in inner city and poor communities where education has been a struggle for several generations. . . . If programs are devised correctly, they can provide meaningful educational choices to families that now do not have such choices. And it is not trivial that most people in America . . . already have such choices."
Cleveland	
Metcalf, 1999:	6 NPR benefit in language and 4 NPR benefit in science after two years for existing schools
Greene, Howell, Peterson, 1998-9:	8 NPR benefit in reading and 16 NPR benefit in math after two years
Washington, D.C	
Wolf, Howell, Peterson, 2000:	African-American students in grades 2 through 5 gained 7 NPR in reading, but students in grades 6 though 8 lost 8 NPR in math after one year.
Dayton	
Howell and Peterson, 2000:	African-American students gained 7 NPR in math after one year
New York	
Peterson, Myers, Howell, 1998:	Choice students in grades 2 through 5 benefited by about 2 NPR in math and reading. Older students, in grades 4 and 5, gained 4 points in reading and 6 points in math after one year.

Table 3: Evidence of Creaming?

Characteristics of Choosers

	Family Income	Single Mother	Prior Test Scores
Milwaukee	$10,860	76%	31 NPR
Cleveland	$18,750	70%	NA
New York	$10,540	NA	27 NPR
D.C.	$17,774	77%	33 NPR
Dayton	$17,681	76%	26 NPR
San Antonio	$15,990	45%	35 NPR

TABLE 4: HOXBY'S FINDINGS ON THE SYSTEMIC EFFECTS OF CHOICE

One Standard Deviation Increase in . . .

	Public School Choices	Private School Choices
Test Scores	3 Percentile Increase	8 Percentile Increase
Wages Later in Life	4 Percent Increase	12 Percent Increase
Per Pupil Cost	17 Percent Decrease	No Change

TABLE 5: THE EFFECT OF SCHOOL CHOICE ON INTEGRATION

Greene, 1998, analysis of data from NELS:

More than a third (37%) of private school students were in classrooms with a percentage of minority students that was within 10% of the proportion of minority students nationally. Only 18% of public school students were in similarly integrated classrooms. And more than half (55%) of public school students were in classrooms that were almost entirely white or almost entirely minority in their racial composition, while 41% of private school students were similarly segregated.

Greene and Mellow, 1998, Observation of lunchrooms:

After adjusting for the city, seating restrictions, school size, and student grade level, we found that 79% of private school students were in racially mixed groups compared to 43% of public school students. Sitting in a racially mixed group was defined as having any one of five adjacent students being of a different racial or ethnic group.

Nechyba, 1999, policy simulation:

"By removing education-related incentives for high-income households to separate themselves from poor neighborhoods, vouchers introduce a desegregating force into society. [And] by reducing housing prices in high quality public school districts and raising them in low quality districts, vouchers help more low-income families afford to live in areas with better public schools."

Greene, 1999, analysis of Cleveland choice program:

Nearly a fifth (19%) of recipients of a voucher in Cleveland attend private schools that have a racial composition that resembles the average racial composition of the Cleveland area (defined as having a proportion of minority students in the school that is within 10% of the average proportion of minorities in metropolitan Cleveland). Only 5% of public schools students in the Cleveland metropolitan area are in comparably integrated schools. More than three-fifths (61%) of public school students in metropolitan Cleveland attend schools that are almost entirely white or almost entirely minority in their racial composition. Half of the students in the Cleveland Scholarship Program are in comparably segregated schools.

Fuller and Mitchell, 1999, analysis of Milwaukee choice program:

"To . . . compare racial and ethnic isolation in choice schools and MPS schools, we identified [racially isolated] MPS and Catholic elementary schools. . . . Nearly twice as many MPS elementary students were in racially isolated schools."

TABLE 6: THE EFFECT OF CHOICE ON CIVIC VALUES

Greene, Giammo, and Mellow, 1999
Analysis of the Latino National Political Survey

Latinos who received their education entirely in private school were willing to tolerate the political activities of their least-liked group 50% of the time compared to 39% for Latinos who never attended private school, holding all other factors constant.

Wolf, Greene, Kleitz, Thalhammer, 2000
Analysis of a survey administered to college students in Texas

The benefit of having received all of one's primary and secondary education in private schools is roughly .3 of a standard deviation on the tolerance scale, an effect that is fairly large.

Campbell, 2000
Analysis of a national data set of high school students

Catholic school students are more likely to tolerate anti-religious activities than are public school students. Private school students are more likely to volunteer and develop civic skills, such as the ability and willingness to write letters and engage in public speaking on public issues.

Godwin, et al, 2000
Analysis of survey administered to 8th graders in New York and Texas

The results show a statistically significant and positive effect of private education on political knowledge and support for democratic norms. The results for tolerance were positive but fell short of statistical significance.

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Author(s): Jay P. Greene

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Publication Date: July 2000

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EFF-088 (Rev. 2/2000)